

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A crystalline non-homogeneous adsorbent comprising a crystalline core having a size between 0.2 and 50 μm combined with at least one crystalline continuous outer layer having a thickness between 0.1 μm and 100 μm wherein the core of said adsorbent has a volume adsorptive capacity representing at least 35% of the volume of the adsorbent and the outer layer has a diffusional selectivity greater than 5, ~~measured as the ratio of diffusion coefficients (m^2/sec) at 200°C of 3-methylpentane/2,2-dimethylbutane~~, said core ~~and outer layer~~ having a zeolitic diffusional selectivity lower than that of the core outer layer.
2. (Previously Presented) A non-homogeneous adsorbent according to claim 1, wherein the volume adsorptive capacity of the core represents at least 40% of the volume of the adsorbent.
3. (Previously Presented) A non-homogeneous adsorbent according to claim 1, wherein the diffusional selectivity of the outer layer is greater than 10.
4. (Previously Presented) A non-homogeneous adsorbent according to claim 1, wherein the adsorptive capacity of the core is greater than that of the continuous outer layer.
5. (Cancelled)
6. (Previously Presented) A non-homogeneous adsorbent according to claim 1, wherein the core contains a crystallized micro- or mesoporous solid.
7. (Previously Presented) A non-homogeneous adsorbent according to claim 1, wherein the continuous outer layer contains a crystallized microporous solid.

8. (Cancelled)
9. (Cancelled)
10. (Cancelled)
11. (Previously Presented) A non-homogeneous adsorbent according to claim 1, wherein the continuous outer layer has a thickness between 0.1 and 10 μm .
12. (Previously Presented) A non-homogeneous adsorbent according to claim 1, wherein both the core and said continuous outer layer comprise zeolitic solids, the zeolite in the core being different from that in the continuous outer layer.
13. (Previously Presented) A non-homogeneous adsorbent according to claim 1 in spherical or cylindrical form.
14. (Previously Presented) A non-homogeneous adsorbent according to claim 13, wherein the radius of the core represents at least 40% of the total radius of the adsorbent.
15. (Previously Presented) A gas- or vapour- separation process comprising passing a multicomponent gas through a zone comprising non-homogeneous adsorbent according to claim 1.
16. (Previously Presented) A liquid-separation process comprising passing a multicomponent gas through a zone comprising non-homogeneous adsorbent according to claim 1.

17. (Previously Presented) A non-homogeneous adsorbent according to claim 6, wherein the continuous outer layer contains a crystallized microporous solid.
18. (Previously Presented) A non-homogeneous adsorbent according to claim 1, wherein the core comprises a faujasite structural type zeolite and the outer layer comprises an MFI structural type zeolite.
19. (Previously Presented) A non-homogeneous adsorbent according to claim 18, wherein the faujasite structural type zeolite comprises zeolite X and the MFI structural type zeolite comprises silicalite-1.
20. (Previously Presented) A gas separation process comprising passing a multi component gas through a zone comprising non-homogeneous adsorbent according to claim 18.
21. (Previously Presented) A process according to claim 20, wherein said gas comprises mono-branched paraffins and di-branched paraffins.
22. (Previously Presented) A non-homogeneous adsorbent according to claim 12, produced by first preparing a solid zeolite core and next preparing a dispersion of a second zeolite for the outer layer and adhering particles of said outer layer zeolite to said core zeolite.
23. (Previously Presented) A process for producing non-homogeneous zeolitic adsorbents comprising preparing a solid core of a first zeolite and a dispersion of nano particles of a second zeolite, and contacting said dispersion with said solid core so as to adhere particles of said second zeolite onto said first zeolite.

24. (Previously Presented) A crystalline non-homogeneous adsorbent comprising an empty core having a size between 0.2 and 50 μm combined with at least one crystalline continuous outer layer having a thickness between 0.1 μm and 100 μm wherein the core of said adsorbent has a volume adsorptive capacity representing at least 35% of the volume of the adsorbent and the outer layer has a diffusional selectivity greater than 5, measured as the ratio of relative diffusion coefficients (m^2/sec at 200°C of 3-methyl pentane/2,2-dimethyl butane).
25. (Previously Presented) A liquid-separation process comprising passing a multicomponent gas through a zone comprising non-homogeneous adsorbent according to claim 24.
26. (Previously Presented) A crystalline non-homogeneous adsorbent according to claim 24, wherein the size of the core is between 0.5 and 5 μm and the outer layer has a thickness of 0.1-10 μm .
27. (Previously Presented) A non-homogeneous adsorbent according to claim 1, wherein the core of the adsorbent has a negligible diffusional resistance.